Serverless Classifier

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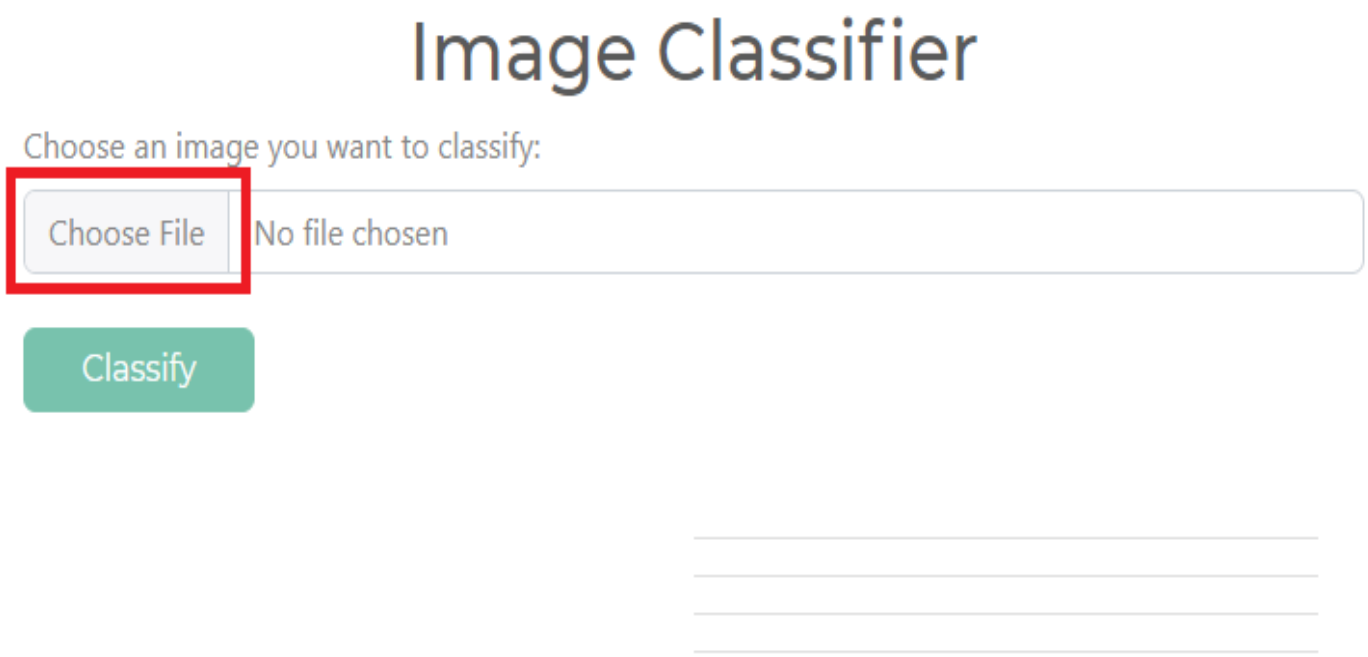
Introduction

Aims of the project:

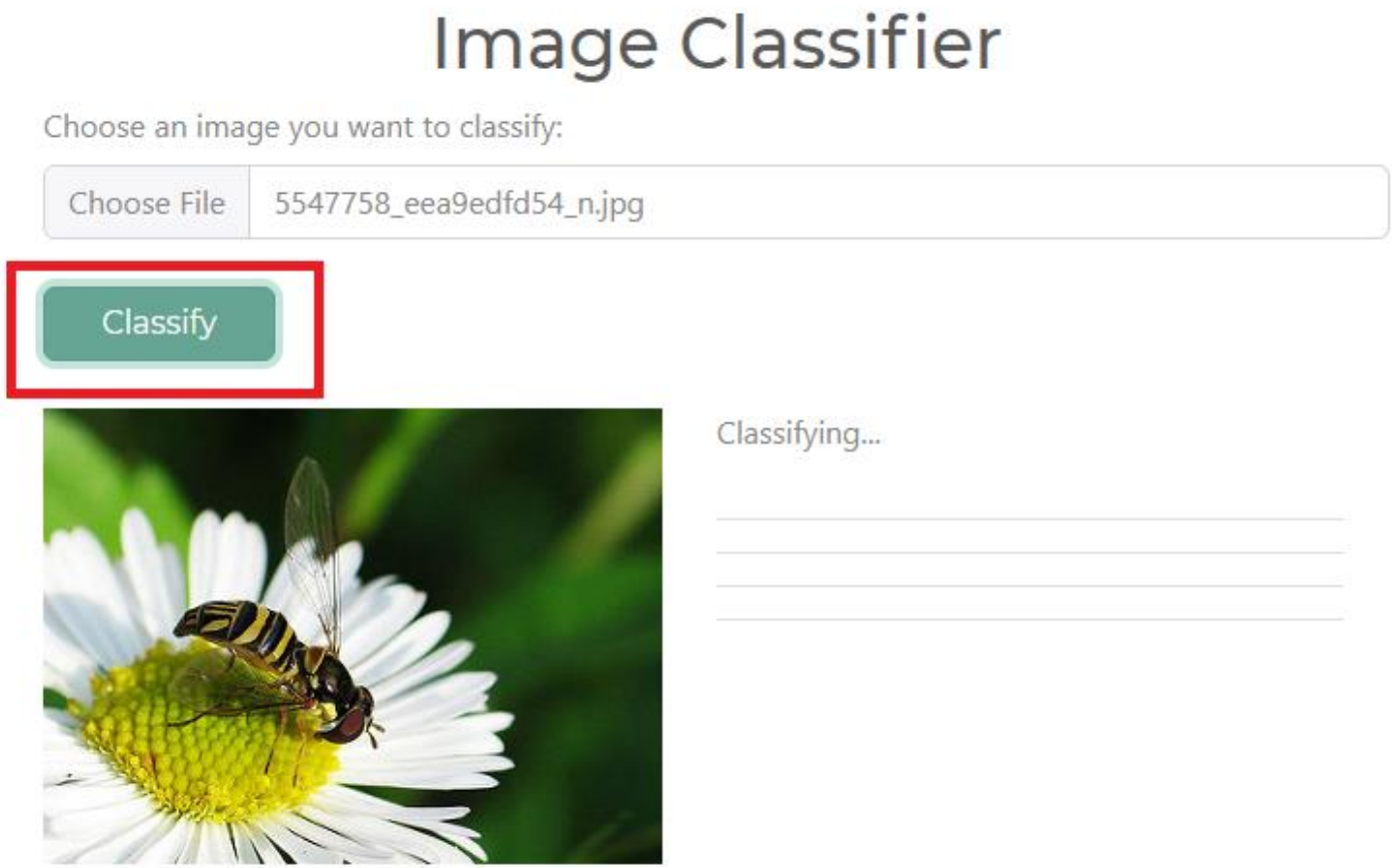
- Classify images using a deep learning model
- No servers
  - Pay as you go
  - Automatic load balancing
  - Zero maintenance required
- Get familiar with OpenWhisk and Cloud Functions

Usage Example

Go to http://classify.amitaifrey.com/



Usage Example



Usage Example

Image Classifier

Choose an image you want to classify:

Choose File | 5547758_eea9edfd54_n.jpg

Classify

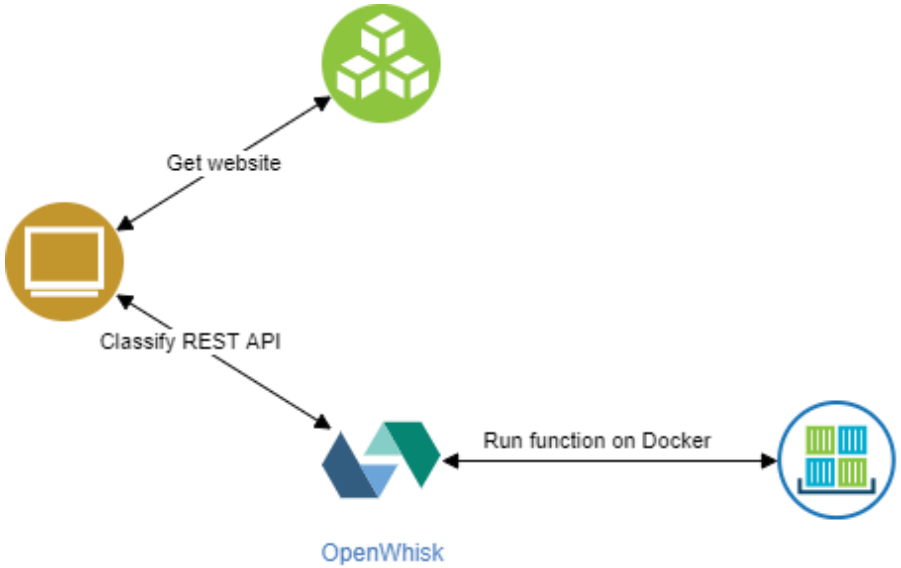
Classifying took 21.947s overall, 21.69s in the python script.

Predictions:

- bee: 0.336569
- fly: 0.212485
- daisy: 0.16026327
- leaf_beetle: 0.03216074
- ant: 0.017659022

How it works

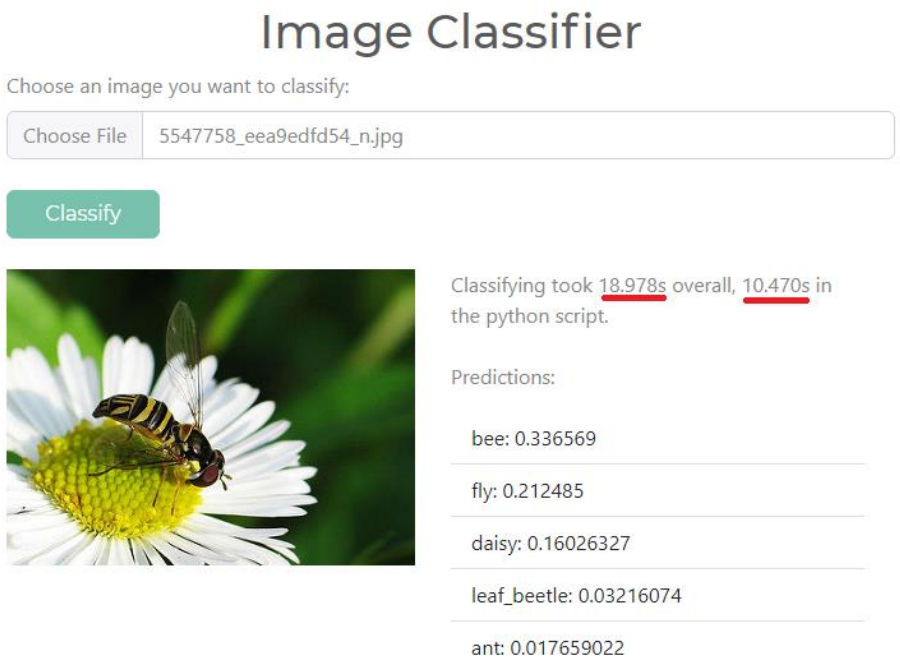
1. Browsing the webpage gets it from the Object storage
2. The webpage sends a REST call to the OpenWhisk frontend
3. OpenWhisk balances the load, running and stopping docker containers as needed
4. OpenWhisk passes the request to the docker
5. The docker returns the response
6. OpenWhisk sends it back to the user
7. The webpage shows the result on the page



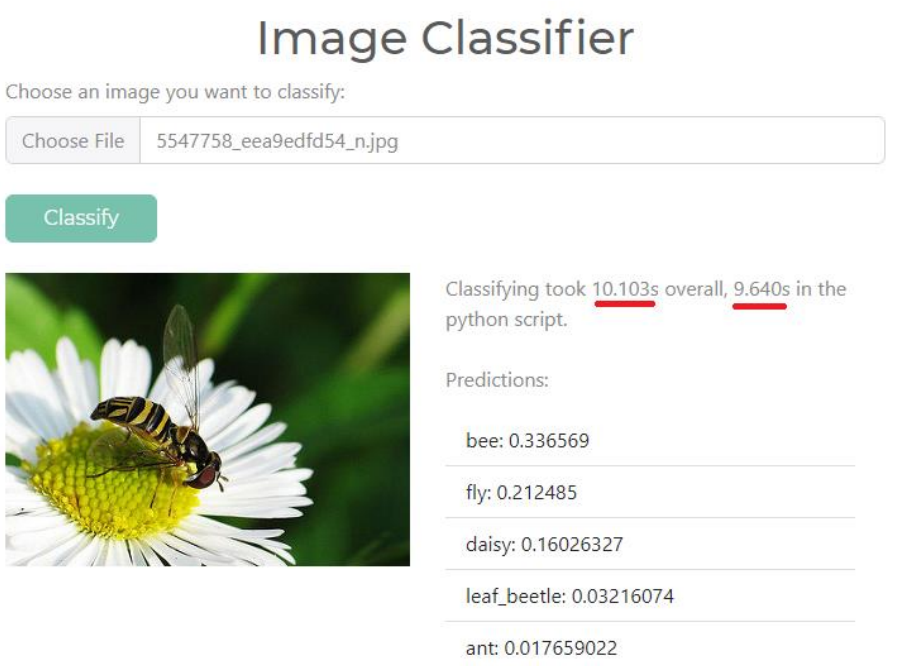
Comparing runtimes

- Calling the classifier for the first time might take some extra time:

First run:



Second run:



Comparing runtimes (cont.)

- This tells us how much time OpenWhisk takes to set up the cloud function environment
- We can see that once it is set up, there is almost no additional overhead to the OpenWhisk service

Future Suggestions

- Support additional image formats
- Improve classifying runtime
- Add different classifying functions

Thank you!

Links:

http://classify.amitaifrey.com/

https://github.com/amitaifrey/serverless-classifier